OREX
Computed Radiography Ltd.
The Dental Line DIGIDENT

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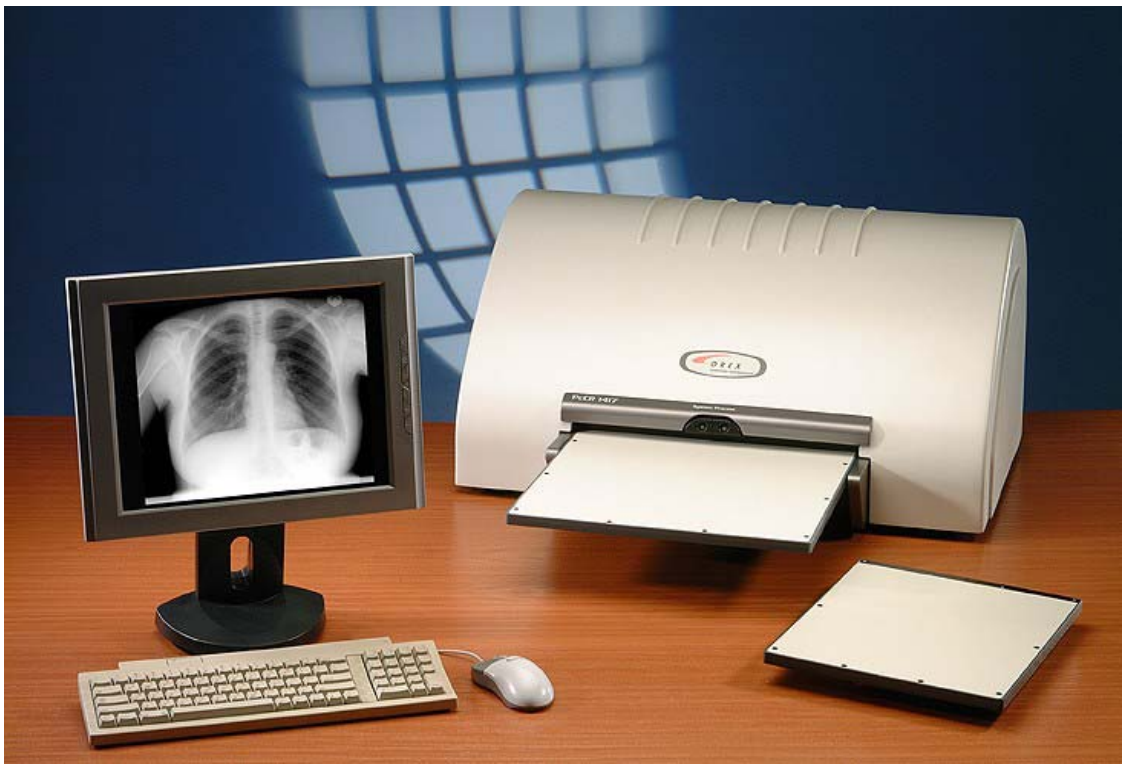
PcCR 1417 ACL4 System

Automatic Cassette Loading Version



Installation Manual

October, 2003 Ver. 02

OREX Computed Radiography Ltd.

OREX Ltd. is a market innovator in the field of portable Computed Radiography Technologies—designed and priced for low-volume clinic or field unit needs.

Founded in 1995 under the name of Digident, the company initially entered the market of desktop dental radiography providing high quality, portable CR reading units for dental and orthodontic professionals around the world. The secret of Digident/OREX's rapid success lies in *the best cost-performance ratio on the market*.

OREX designs, manufactures and markets phosphor image laser scanners. These units replace the traditional x-ray film and light box. The scanners allow the user to immediately read the x-ray image from the phosphor plate, and transfer it to a DICOM 3 compatible digital computer file. Once transferred, users can manipulate the digital image for close-up screening, or transmit it for long-distance consultation. After each scan, the phosphor plates are automatically erased by the unit, ready for re-use.

OREX provides clients with a full solution including phosphor image plates, laser readers, software for image processing, storage, retrieval and communication in Picture Archiving and Communications System (PACS) compatible format.

The company's mission is to become a leading provider of compact personal CR systems. Following the successful penetration of the global dental market, the company changed its name from Digident to OREX and expanded its markets and product lines to serve the *dental, medical, military, industrial and veterinary* fields.

"We are committed to assisting our customers in obtaining maximum value from OREX products by providing excellent support at exceptional value."

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Safety Summary

LIFTING HAZARD

The PcCR 1417 scanner weighs 40 Kg (88lb).

- Do not try to lift the scanner by yourself.
- Always seek assistance from another person.
- Lifting equipment that is too heavy may result in serious injury to personnel and/or damage to equipment.

WARNING

The PcCR1417 scanner is a CLASS 1 Laser product.

- Do not remove the scanner cover
- Cover removal should be done only by authorized service personnel

Laser Safety Instructions

1. During normal operation, the scanner should always be enclosed in its protective cover. This is to prevent the outside area from being exposed to laser.
2. During normal operation, the cover should not be removed. Removing the cover should only be done for service purposes by a qualified technician.

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1. Terms and Conventions

The following abbreviations are used throughout this manual:

Term	Meaning
FSE	Field Service Engineer
PSP	Photo-Stimulate Phosphor
USB	Universal Serial Bus

2. Packaging

The PcCR 1417 is shipped in a custom designed box that protects the scanner. If the PcCR 1417 needs to be returned to Orex or one of its dealers, the scanner must be repacked in its original box, and must include the CD and the USB cable.

Figure 1: Closed Box

Please use all the protective parts in the box in order to keep the risk of damage to the scanner to a minimum.

Figure 2: Open Box

3. Site Preparation

3.1 General

Inform the client about the site preparation requirements prior to installing the PcCR 1417. Without these requirements being met, you cannot complete the installation, and the client's ability to use the PcCR 1417 properly can not be guaranteed.

3.2 Computer Requirements

Pentium 4, 1.8 GHz (or above-2.4GHZ Recommended)
256 MB RAM (512MB recommended)
Hard drive – 20 GB (or above)
Network adapter (required for Dicom – send)
Operating system – Win 2000
USB Port
NO USB mouse or keyboard
Parallel port
Screen resolution – 1024 x 768 (or above)
USB 1.1

3.3 Space Requirements

The PcCR 1417 shall be positioned on a stable surface, with at least 20 cm (~ 8") free space on every side of the scanner. A long USB cable shall connect the PcCR 1417 scanner to the computer, enabling a proper distance of these units from each other.

The space requirements for the PcCR 1417 (including scanner dimensions and additional space) are shown below:

Figure 3: PcCr 1417 Dimensions

3.4 Electrical Requirements

Voltage:	90 V–250 V AC, 200VA
Frequency:	50Hz–60Hz
Fuses:	Two fuses are located next to the **On**/**Off** switch at the back of the scanner. Each fuse protects one of the power supplies. The fuses are 1A (slow blow).
UPS:	Online; 500 VA

3.5 Environmental Requirements

3.5.1 Temperature

Maintain the room temperature between 18ºC and 30ºC, normal lab conditions; relative humidity 80%, non-condensing.

3.5.2 Light

The PcCR 1417 is sealed and protected from light penetration. However, it is recommended to keep the PcCR 1417 in standard room light, away from the window.

The PcCR 1417 uses phosphor plates for acquiring images. The phosphor plates are sensitive to light, and therefore exposure to light should be kept to a minimum. The phosphor plates should be exposed to light only when they move from the cassette into the PcCR 1417 scanner.

For optimal results, room light is recommended at less than 1000 Lux.

4. Installation

This chapter contains explanations regarding the installation of the PcCR 1417.

The FSE who installs the PcCR 1417 shall follow the steps described herein. Upon completion of the installation, fill out the Installation Report (Appendix B).

4.1 General

On-site installation of the PcCR 1417 shall be carried out by FSEs authorized by Orex, and will follow the instructions below: who do the following:

1. Verify the integrity and check the shock indicators on the package.
2. Unpack the PcCR 1417 and position it in the desired location.
3. Verify the integrity of the unit and its components.
4. Plug the system into the electrical outlet, and connect the USB cable to the PC (section 4.4.1.)
5. Install the software for the PcCR 1417 (section 4.4.2 – 4.4.4.)
6. Test the system's functional operation.
7. Send a completed Installation Report (Appendix B) to Orex service department.

Note: The warranty shall not be issued until Orex service department receives the installation report. (Warranty will be issued only after Orex service department receives the installation report)

4.2 System Configuration On-Site

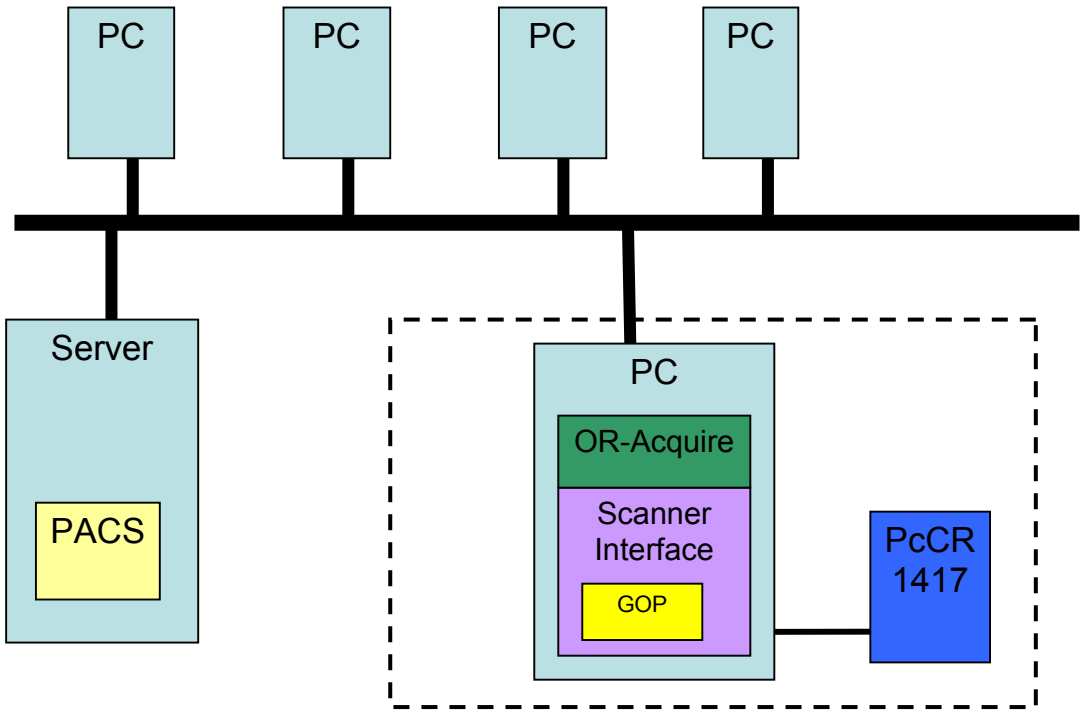


Figure 4: System Configuration

PC – Make sure that the PC you are using meets the requirements described in Section 3.2, Computer Requirements

Scanner interface – Software supplied by Orex with every system

GOP – Enhancements for the scanner interface software for the purpose of image enhancement (requires special dongle connected to the parallel port of the PC)

Please note:
Installation without the GOP causes a non-optimal image quality.

Imaging software installed on the PC for the purpose of acquiring, storing, and Dicom sending the images to different stations

4.3 Equipment Required For Complete Installation

1. PC (refer to “computer requirements” for details)
2. Cables: Power cable (not included with the PcCR 1417), USB cable (included with the PcCR 1417)
3. “Scanner interface” CD
4. “Onyx” CD
5. Dongle (parallel plug) for licensing GOP filters .
6. Dongle for “Onyx”

Figure 5: Dongle Parallel Plug

4.4 Installation process

The installation process includes the following:

4.4.1 Connecting the cables

4.4.2 Installing drivers for PcCR 1417

4.4.3 Installing “scanner interface”

4.4.4 Installing “Onyx” .

4.4.6 Installing the Dongle (license for GOP)

4.4.4 Licensing the GOP filters

4.4.1 Connecting the cables

1. Connect the power cable from the PcCR 1417 to the power outlet.
2. Connect the USB cable (included in the PcCR 1417 box) to the USB port of the PC.

4.4.2 Installing the drivers for the PcCR 1417

1. Turn on the PcCR 1417. The system makes initializations noise. “Found new hardware” screen appears, followed by the installation screen:

2. Click “next”

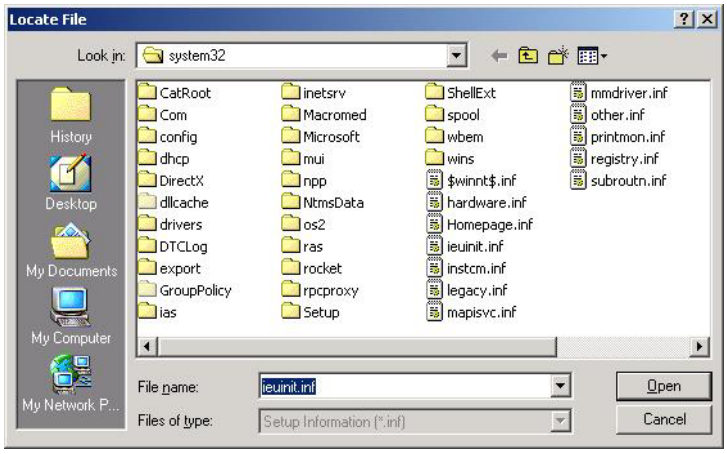
Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
USB Device
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

3. Choose “Search for a suitable…”; then click “Next”

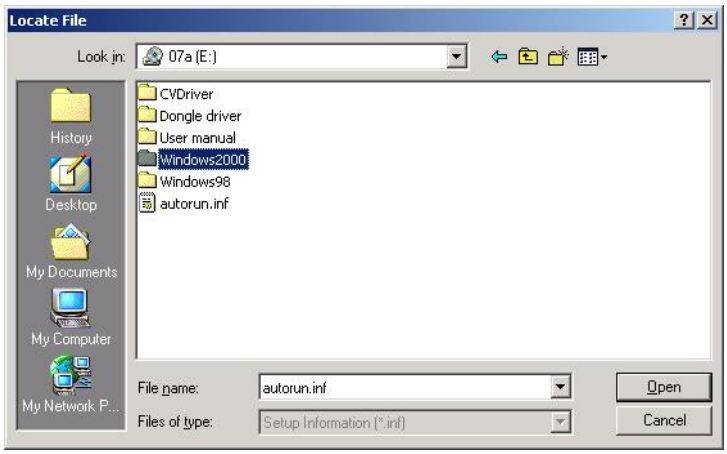
Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
USB Device
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

4. Leave only the “specify a location” check-box selected; then click “Next”

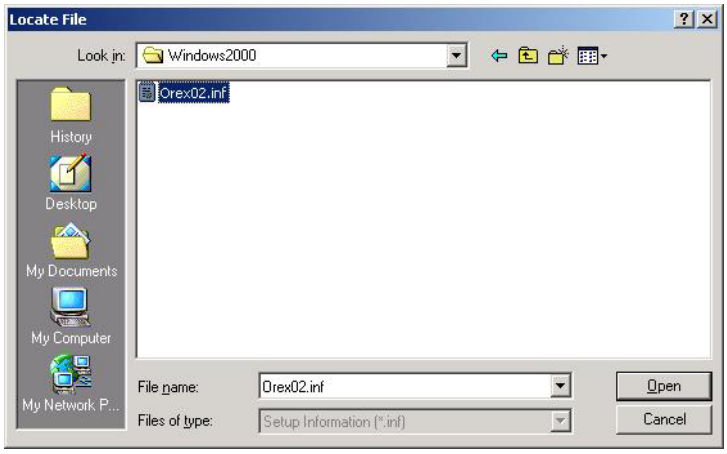
5. Insert the “scanner interface” CD in to the CD-Rom drive.
   Click the “Browse” button. Chose the CD-Drive location



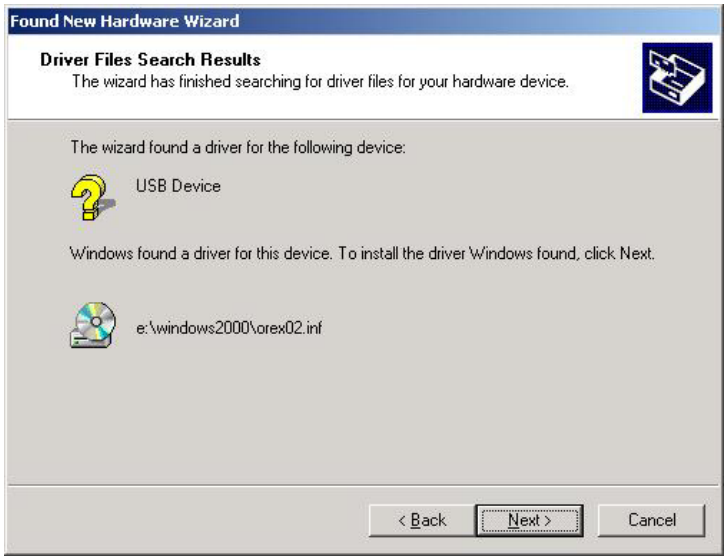
6. A “Locate file” window appears.
   Browse to the CD-Rom.



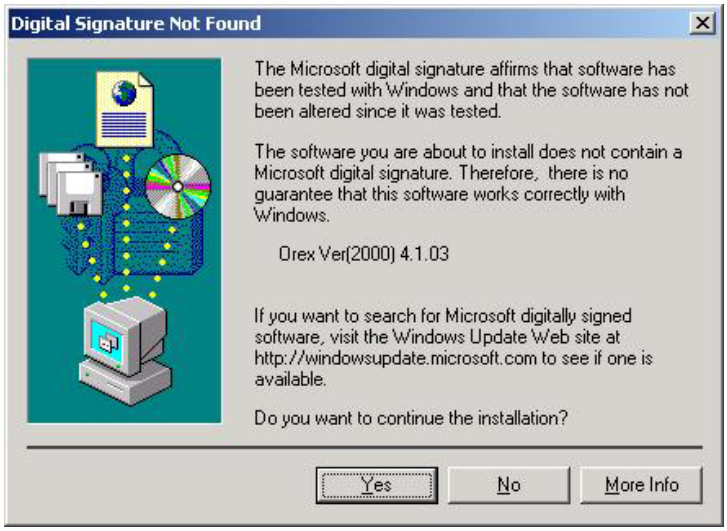
7. Double click the “Windows2000” folder.



8. Mark the “orex02.inf” file; then click “Open”


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
USB Device
Windows found a driver for this device. To install the driver Windows found, click Next.
e:\windows2000\orex02.inf
< Back
Next >
Cancel

9. The Installation Wizard finds the driver for the PcCR 1417.
   Click “Next”.


Digital Signature Not Found
The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.
Orex Ver(2000) 4.1.03
If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.
Do you want to continue the installation?
Yes
No
More Info

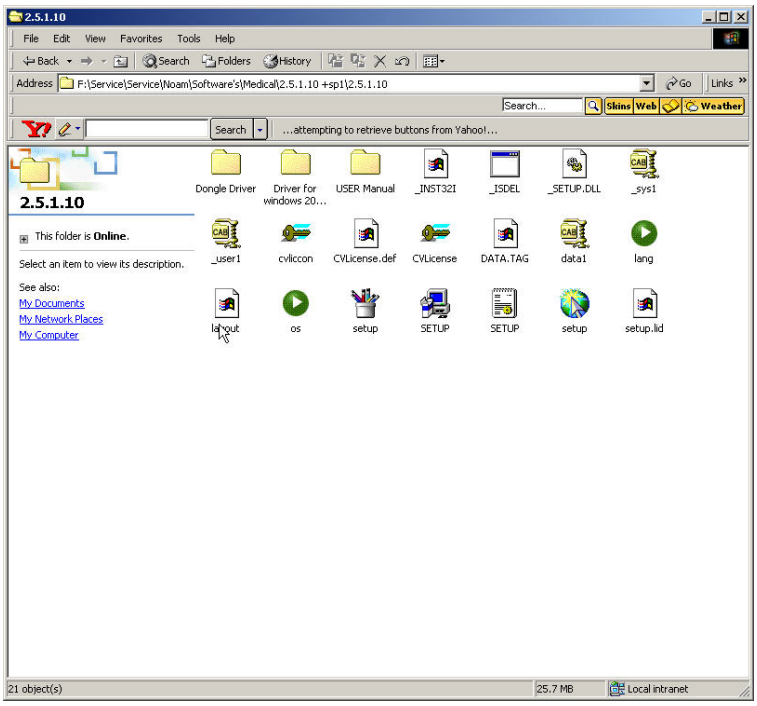
10. Click “Yes” for confirming the driver file

Found New Hardware Wizard
Completing the Found New Hardware Wizard
Orex Ver(2000) 4.1.03
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

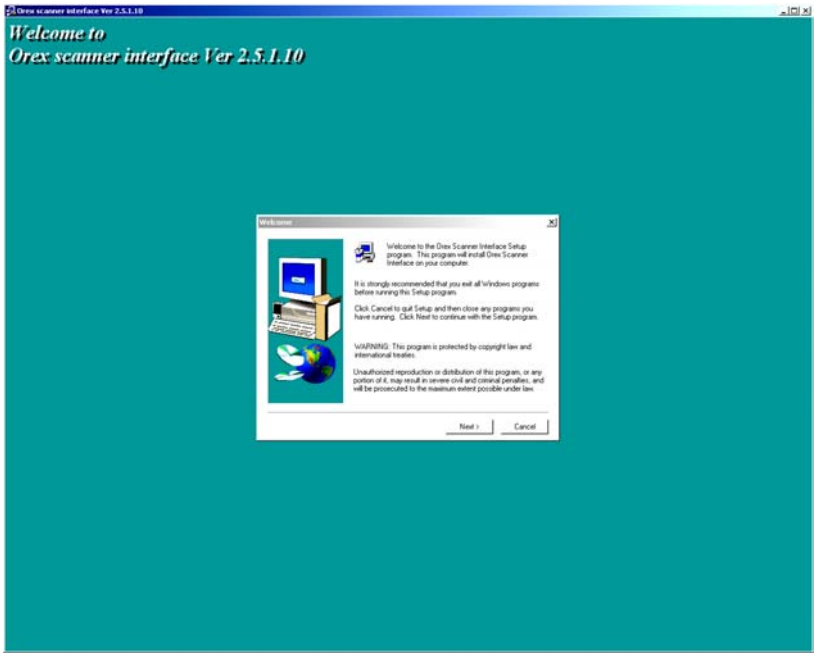
11. The installation wizard completes the installation of the driver.

4.4.3 Installing the “Scanner Interface” (and service pack number xxx if needed).

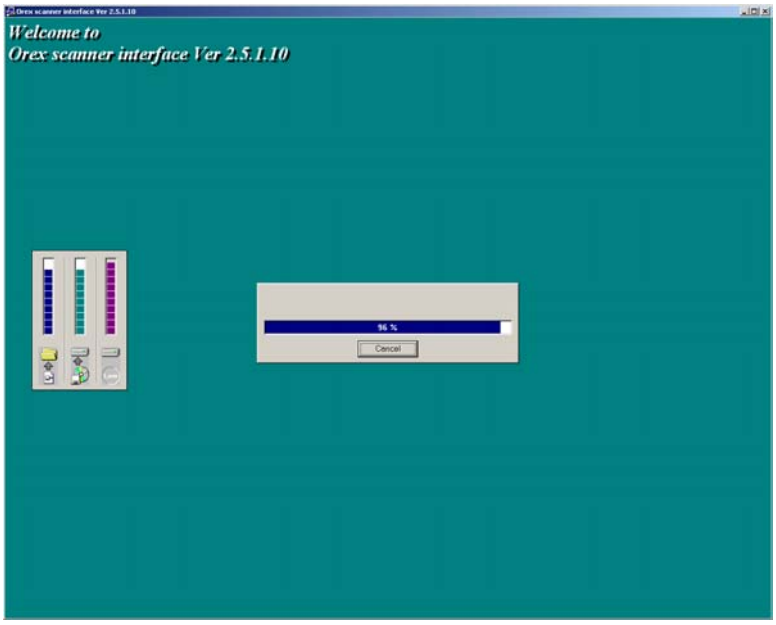
1. Insert the “Scanner Interface” CD into the CD-Rom drive. Double-click on “My Computer” and choose the CD-Rom drive. The content of the CD will appear on a new window:



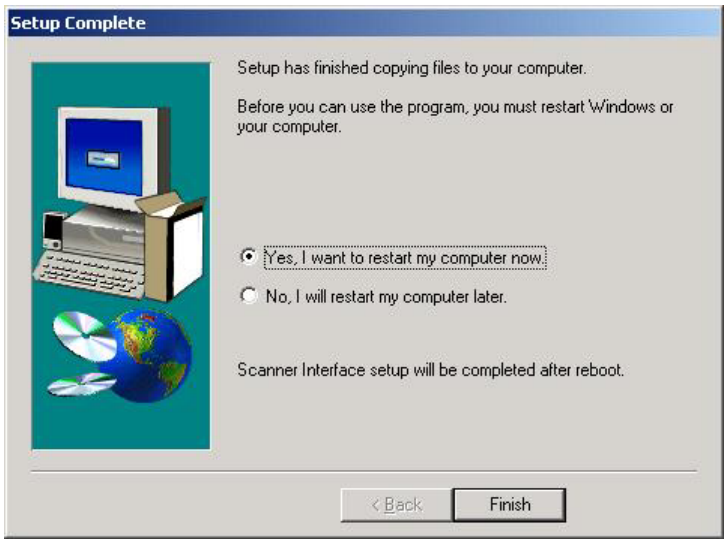
2. Double-click the “setup.exe” file.



3. The installation of “Scanner Interface” begins.
   Click “Next”.



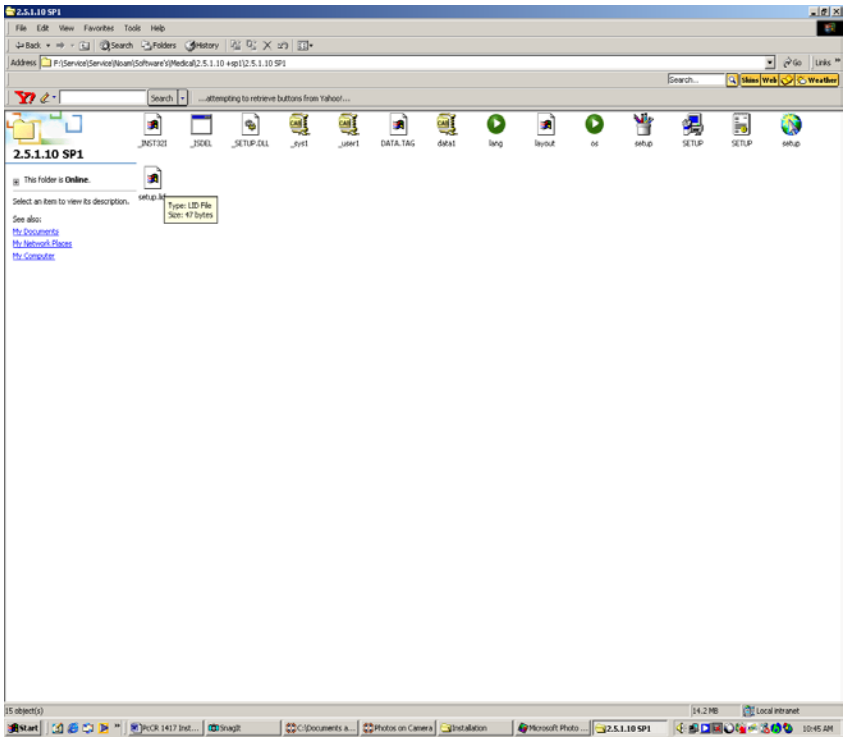
4. The “Scanner Interface” software is now installed. Click “Finish” to restart the computer.


Setup Complete
Setup has finished copying files to your computer.
Before you can use the program, you must restart Windows or your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Scanner Interface setup will be completed after reboot.
< Back
Finish

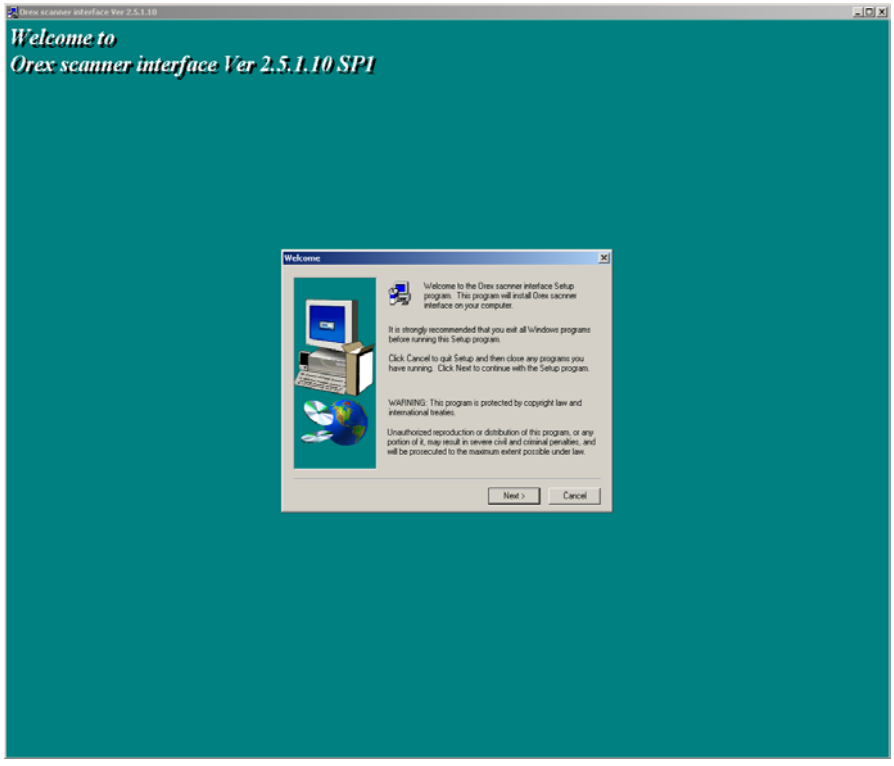
Installing the “Scanner Interface” Service pack (Example for service pack 1)

Each service pack will include the previous service pack. (Example – service pack 4 will include the previous SP1-3 . Install only
The scanner interface with the last SP) .

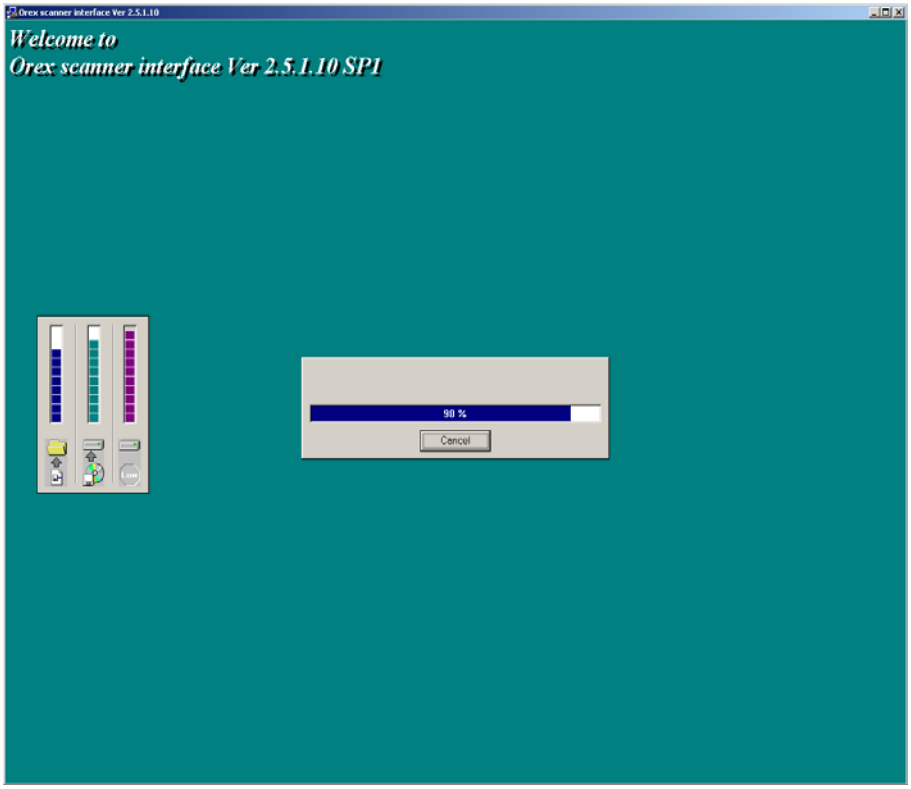
1. Insert the “Scanner Interface” SP1 CD into the CD-Rom drive. Double-click on “My Computer” and choose the CD-Rom drive. The content of the CD will appear on a new window:



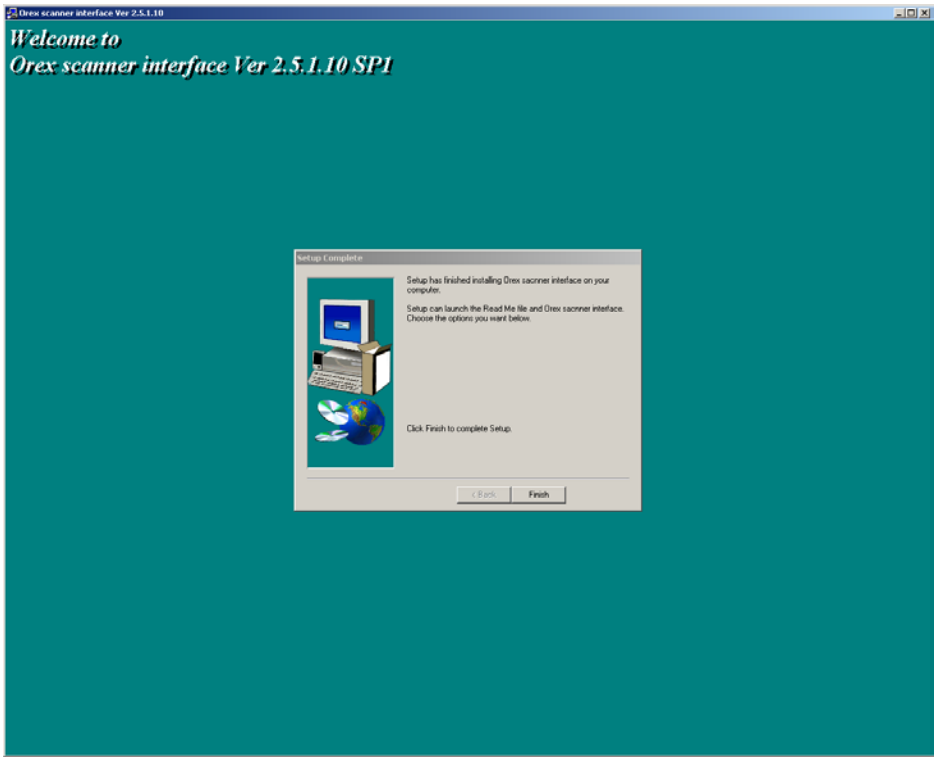
2. Double-click the “setup.exe” file.


Welcome to
Orex scanner interface Ver 2.5.1.10 SP1
Welcome
Welcome to the Orex scanner interface Setup program. This program will install Orex scanner interface on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

3. The installation of “Scanner Interface” SP1 begins.
Click “Next”.



4. The “Scanner Interface”SP1 software is now installed. Click “Finish” to restart the computer.


Orex scanner interface Ver 2.5.1.10
Welcome to
Orex scanner interface Ver 2.5.1.10 SP1
Setup Complete
Setup has finished installing Orex scanner interface on your computer.
Setup can launch the Read Me file and Orex scanner interface. Choose the options you want below.
Click Finish to complete Setup.
< Back
Finish

4.4.4 “Onyx” Installation

The “Onyx” is supplied on a different CD than the one with the “Scanner Interface”.

For installation of the “Onyx”, refer to the detailed explanations in the Viztek- Onyx-Rad User Manual.

Pay attention:

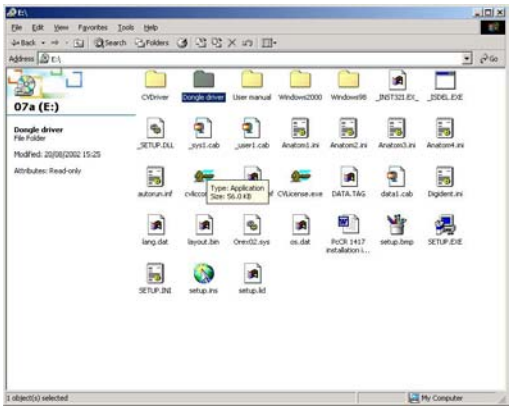
1. The “Onyx” needs a Dongle in order to work. If the Dongle is not installed, or is not connected to the parallel port, the software cannot run.
2. Restart the computer at the end of the “Onyx” installation.

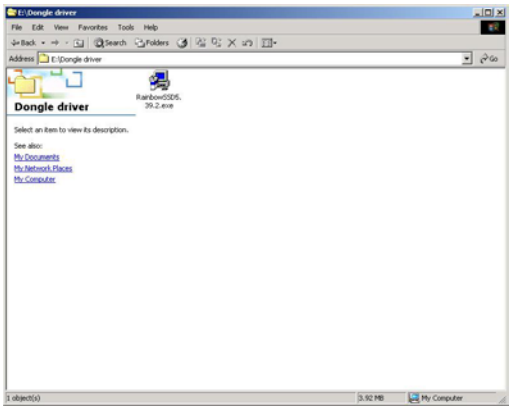
4.4.5 Installing the GOP Driver

The GOP filter is an image enhancement feature that can be added to the scanner interface software. It requires the Dongle, specified at the beginning of this chapter.

1. Connect the Dongle (parallel plug) to the “Onyx” Dongle as a second dongle . (if not using the “Onyx” connect the Dongle to the parallel port).

2. Insert the “Scanner Interface” CD into the CD-Rom drive. Browse to the CD-Rom drive on the windows explorer, and double click the “Dongle Driver” folder.

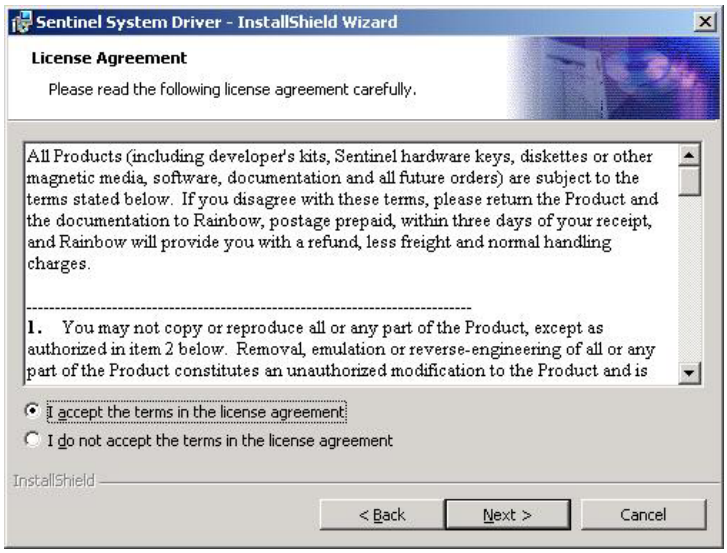




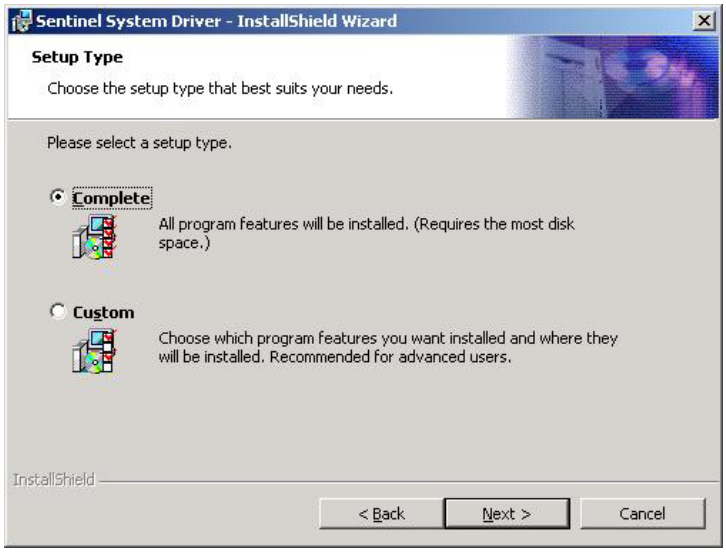
3. Double click the “RainbowSSD5.39.2.exe” file.

Sentinel System Driver - InstallShield Wizard
Welcome to the InstallShield Wizard for Sentinel System Driver
The InstallShield(R) Wizard will install Sentinel System Driver on your computer. To continue, click Next.
< Back
Next >
Cancel

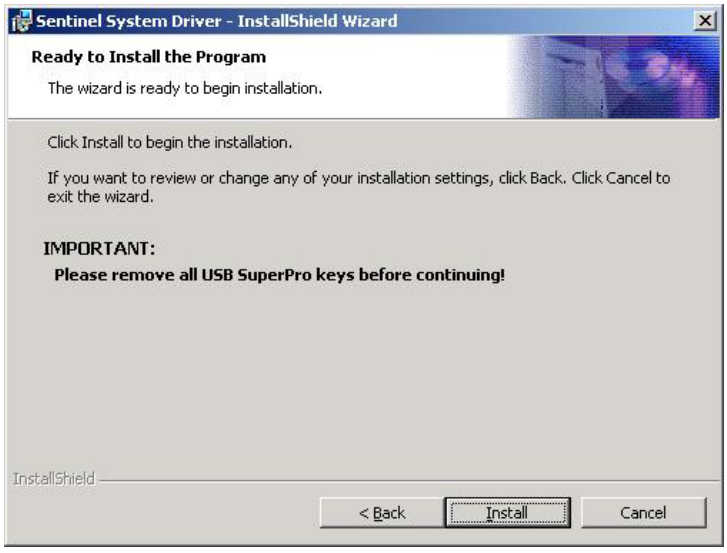
4. Click “Next” to continue.


Sentinel System Driver - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
All Products (including developer's kits, Sentinel hardware keys, diskettes or other magnetic media, software, documentation and all future orders) are subject to the terms stated below. If you disagree with these terms, please return the Product and the documentation to Rainbow, postage prepaid, within three days of your receipt, and Rainbow will provide you with a refund, less freight and normal handling charges.
1. You may not copy or reproduce all or any part of the Product, except as authorized in item 2 below. Removal, emulation or reverse-engineering of all or any part of the Product constitutes an unauthorized modification to the Product and is
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

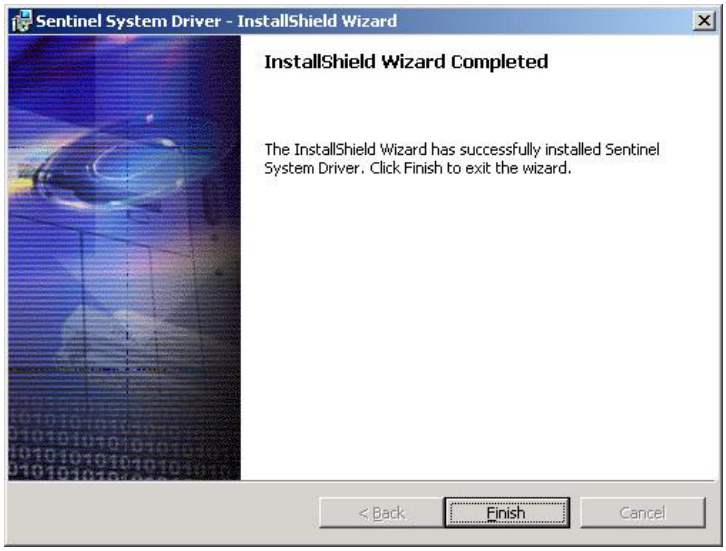
5.Choose “I accept the terms…”, and click “Next


Sentinel System Driver - InstallShield Wizard
Setup Type
Choose the setup type that best suits your needs.
Please select a setup type.
Complete
All program features will be installed. (Requires the most disk space.)
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

6. Choose “Complete”, and click “Next”


Sentinel System Driver - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
IMPORTANT:
Please remove all USB SuperPro keys before continuing!
InstallShield
< Back
Install
Cancel

7. Click “Install”.

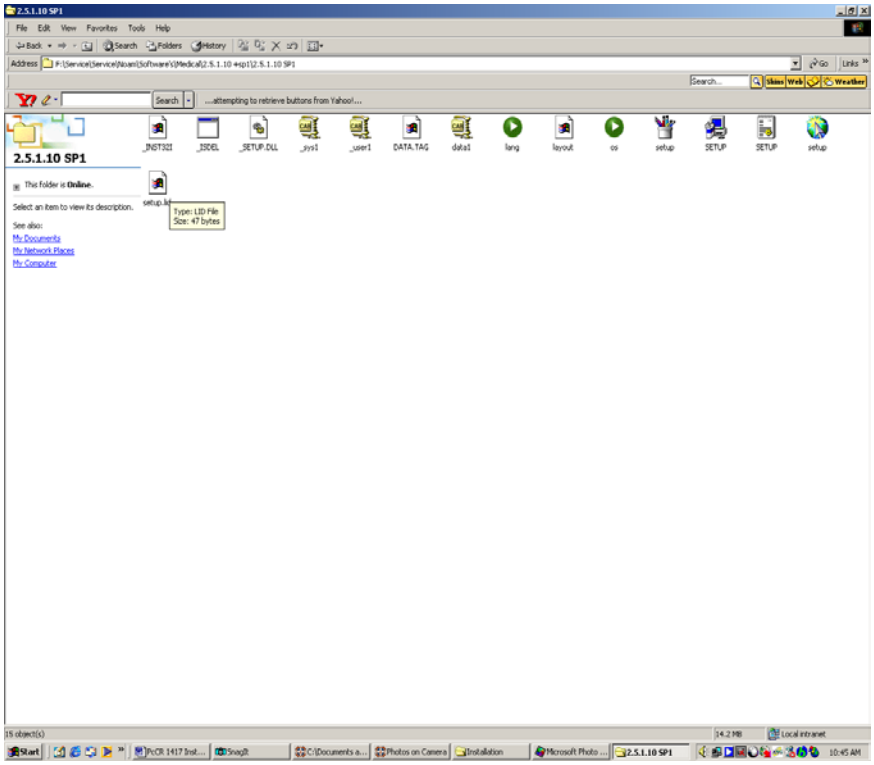

Sentinel System Driver - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed Sentinel System Driver. Click Finish to exit the wizard.
< Back
Finish
Cancel

8. Click “Finish”.

4.4.6 Licensing the GOP Filters

This section can be applied ONLY after installing the Dongle as described on the previous section.

1. Insert the “Scanner Interface” CD into the CD-Rom drive.



2. Double click the “CVLicense.exe” file.

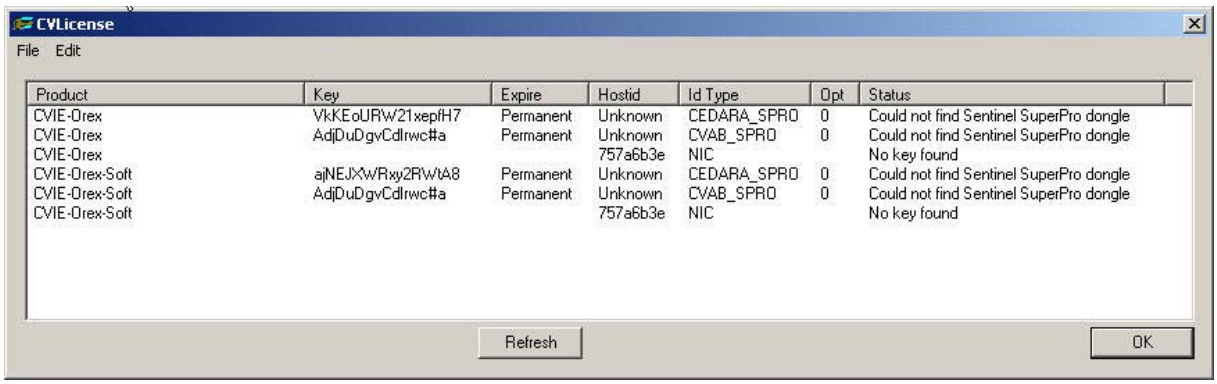
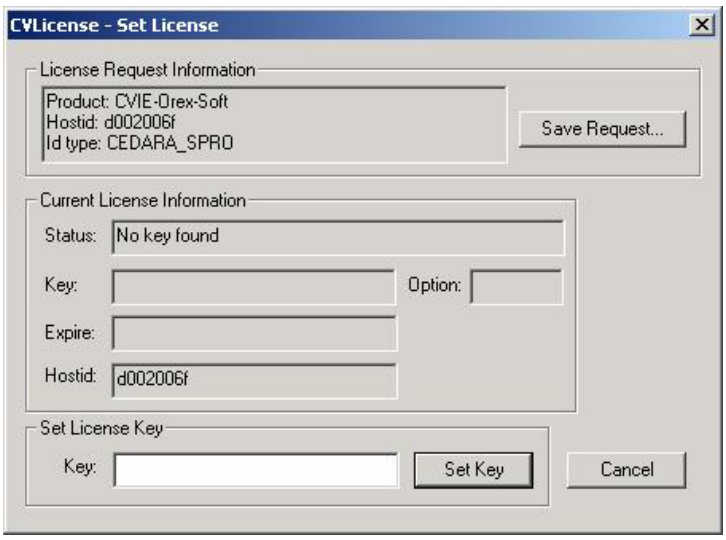

CVLicense
File Edit
Product Key Expire Hostid Id Type Opt Status
CVIE-Orex VkKEoURW21xepfH7 Permanent Unknown CEDARA_SPRO 0 Could not find Sentinel SuperPro dongle
CVIE-Orex AdjDuDgvCdlrwc#a Permanent Unknown CVAB_SPRO 0 Could not find Sentinel SuperPro dongle
CVIE-Orex 757a6b3e NIC No key found
CVIE-Orex-Soft ajNEJXWRxy2RWtA8 Permanent Unknown CEDARA_SPRO 0 Could not find Sentinel SuperPro dongle
CVIE-Orex-Soft AdjDuDgvCdlrwc#a Permanent Unknown CVAB_SPRO 0 Could not find Sentinel SuperPro dongle
CVIE-Orex-Soft 757a6b3e NIC No key found
Refresh
OK

Figure 6: CVLicense Window Before GOP Licensing

3. A new window appears. Double click “CVIE-Orex-Soft” (5rd line).



4. The licensing window appears. Enter the code supplied by Orex into the “Key” dialog box indicate on the Dongle . (long Alpha Numeric no.)

If you have not received the code, please contact your distributor.

The code is unique, and depends on the SN of the Dongle, which appears on the Dongle as a 4-digit number at the bottom line.

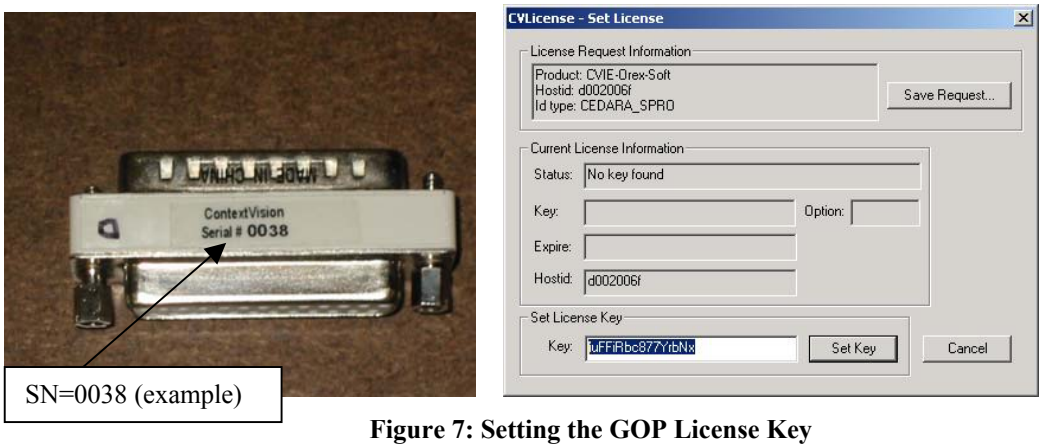


Figure 7: Setting the GOP License Key

5. Enter the code you received; then click “Set Key”.

6. The previous screen appears again. This time the “CVIE-Orex-Soft” Status on the 5rd line is valid. Click “OK”.

4.5 Installation Report

In order for the warranty of the PcCR 1417 to take effect, and in order to verify correct installation by Orex, you are required to fill out the installation form and fax/e-mail to Orex service department.

The installation form is located in Appendix C

Orex Contact Information

Israel:

Fax: (+972) -4- 9591262
Email: support@orex-cr.com

USA:

Fax: (+1) -617-244-8888
Email: supportusa@orex-cr.com

5. Troubleshooting

Overview

This section provides general guidelines for correcting malfunctions that may occur when using the PcCR 1417 System, and answers to Frequently Asked Questions (FAQs).

	Problem	What should I do?	Remarks
1.	"Disconnect" error message appears on the "scanner interface" screen	1. Check: Power cable connected? USB cable connected? 2. Turn system off; then on again.	
2.	Or-Acquire software does not load. Error message received	Check if Dongle is connected to the parallel port of the PC	See also: Chapter 4: Installation
3.	GOP filters do not apply on the image	Make sure that the GOP filters are licensed	See also: Chapter 4: Installation
4.	After the system is turned on, initialization sound does not stop.	Turn system off; then on again. If the problem persists, contact your distributor.	
5.	Cassette cannot be inserted into the tray.	Make sure the cassette is positioned at the center of the tray.	
6.	Image is too bright.	From the Scanner Interface – Setup menu, increase "PM-Gain" for the type of image which is too bright	See also: User Manual – Chapter: Using the scanner interface
7.	Image is too dark	From the Scanner Interface – Setup menu, and decrease "PM-Gain" for the type of image which is too light	See also: User Manual – Chapter: Using the scanner interface
8.	Double image received	1. Check that the erase lamps are working 2. If the erase lamps are OK, increase the erasing factor by 5 from the Scanner Interface – Setup menu ➔ Configuration	
9.	White lines appear on image.	Contact Orex service department	
10.	Horizontal lines appear on image	Contact Orex service department	
11.	Scan does not start	Contact Orex service department	
12.	Systems is shaking	Place system on steady surface	

	Problem	What should I do?	Remarks
13.	Diagonal lines appear on image	There is light penetration into the system. Place the system away from intense light source (window).	See also Chapter 3: Site Preparation

Error List

IMPORTANT

Inform OREX directly or through your vendor about any error messages that may appear. Do not attempt to repair the malfunction by yourself!

Error Message	Cause/Description
Update software please	Memory of Operation Firmware is empty.
Wrong loader parameters	Number of steps for loader's film entering/exiting is not correct.
Lamp 1 turn on fail	First erase lamp cannot turn on—erasing procedure will be performed at half speed.
Lamp 2 turn on fail	Second erase lamp cannot turn on—erasing procedure will be performed at half speed.
Both erase lamps are not working. Erase cannot be performed.	Erasing procedure cannot be performed. If detected in the middle of a scan, the scan will be completed, but the cassette will be ejected without being erased.
Carrier return fail	Stepper motor malfunction.
W0 sensor ON state fail	W0 sensor continuously recognizes film passing through it.
Roller sensor ON state fail	Scanner continuously recognizes film inside rollers.
W0 sensor OFF state fail	W0 sensor cannot recognize film passing through it.
Roller sensor OFF state fail	Scanner cannot recognize film inside rollers.
Z0 sensor ON state fail	Z0 sensor continuously recognizes film passing through it.
Cassette insert fail *	Cassette lock mechanism has failed.
Plate unload fail *	Cassette release mechanism has failed.

* In case of Cassette insert/Plate unload fail message, pull the handle under the cassette tray.

6. Appendix A: Installation Prerequisites

PRE-INSTALLATION FORM

Computer requirements:

PC:	
CPU – Pentium 4, 1.8GHz (min.)	
RAM – 256MB	
Hard-Drive – 20GB	
Operating System:	
Windows 2000	
Monitor:	
Size – 17” (min.)	
Resolution – 1024x768 (min.)	
Ports:	
USB port available	
NO USB mouse or keyboard	
Parallel port	
Additional:	
Network adapter (for Dicom send)	

Space requirements

Stable surface	
Width – 100 cm	
Height – 50 cm	
Depth – 80 cm	

Electrical requirements:

Voltage – 90-250 VAC 200VA	(Recommended dedicated outlet)
Frequency – 50-60 Hz	
UPS – Online, 500 VA	
UPS connected to CR system, PC, Monitor	

Environmental requirements

Temperature – 18ºC-30ºC normal lab conditions	
Humidity – 80% non condensing	
Light – less than 1000 Lux	

Configuration requirements:

Name off PACS on the site *	
Dicom send required?	Yes / No
Dicom Print required?	Yes / No
Single Media Archive required?	Yes / No

* When using the PcCr 1417 with a main PACS on site, the images are Dicom sent to the PACS. Please verify with Orex the compatibility of the PACS to Orex software.

7. Appendix B: Installation Report

INSTALLATION REPORT

Reporting distributor:

Company name:		
Technician installing the PcCr 1417:	Name:	
	Tel. No.:	
	e-mail:	

Site information:

Name:	
Address:	
Tel. No.:	
Additional information:	

Installation pre-requisites:

Date:	
SN of system installed	
Computer requirements met ?	
Space requirements met ?	
Electrical requirements met ?	
Environmental requirements met ?	

* See Installation pre-requisites, Appendix B

Installation process

Drivers for CR	
Scanner interface	
Or-Acquire	
GOP drivers **	
GOP licensing **	

** Optional

Accessories (PLEASE SPECIFY QTY.)

14x17 cassettes	
14x14 cassettes	
10x12 cassettes	
8x10 cassettes	

Or-Acquire

Dicom send ***	
Dicom print	
SNA	

*** Please specify name of PACS to which the images are sent

Name: _____ signature: _____